UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,760	03/29/2004	Nnochiri N. Ekwuribe	014811-52-141P	8918

24239 7590 01/11/2007
MOORE & VAN ALLEN PLLC
P.O. BOX 13706
Research Triangle Park, NC 27709

EXAMINER	
MAIER, LEIGH C	
ART UNIT	PAPER NUMBER
1623	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/811,760	EKWURIBE ET AL.	
	Examiner	Art Unit	
	Leigh C. Maier	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) *21-28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/27/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election of Group I, claims 1-20, in the reply filed on October 23, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 21-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Information Disclosure Statement

Applicant has submitted an information disclosure statement listing several foreign patents and non-patent literature references that were not submitted in the present prosecution and not available in the parent application. These have not been considered and are lined through on the attached form PTO-1449. These references must be submitted with the response to this Office action if Applicant wishes them to be considered and listed on the face of any patent issuing from this application. The examiner regrets any inconvenience.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-7, 10-15 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenwald et al (US 5,622,986).

Greenwald '986 teaches the preparation of taxane prodrugs having at least one moiety of the formula (I) $-O(C=O)-(CH_2)_n-X-R_1$, wherein X is O or NL, and R_1 is a nonantigenic polymer such as mPEG, which may have a molecular weight from about 200-10,000 daltons. See "Summary of the Invention" and col 3, lines 41-43. When X is NL (a salt-forming amine moiety), and R_1 is an mPEG in the lower part of the suggested molecular weight range, this moiety of formula (I) is identical to Formula 2, recited in instant claim 13. This polymer conjugate is attached through a hydrolysable ester or carbonate bond. The reference further teaches the preparation of a pharmaceutical composition for oral administration. See col 6, lines 13-40.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to prepare a taxane prodrug conjugate comprising the polymeric component

of reference Formula (I) because it is expressly suggested by the reference. In the absence of unexpected results, it would be within the scope of the artisan to select either of the options (O or NL) for the variable X. It would be further within the scope of the artisan to optimize the molecular weight of the PEG component through routine experimentation with a reasonable expectation of success. The artisan would be motivated to prepare such conjugate for the art-disclosed utility of treatment disorders, such as neoplastic disease.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenwald et al (US 5,622,986) and Greenwald et al (US 5,730,990).

Greenwald '986 teaches as set forth above. The reference does not teach the full range of therapeutic agents, such as proteins and peptides.

Greenwald '990 teaches the preparation of mPEG conjugates of therapeutic agents, including peptides, proteins, and various small molecules. The mPEG conjugate comprises an amine (salt forming moiety). The reference teaches PEG molecular weights of 200-100,000 daltons. Subtracting 31 for the end methoxy group, this suggests the use of as few as about 4 PEG units. See entire reference, particularly all of col 2; col 6, lines 59-63; and col 7, lines 54-65. The reference teaches that these conjugates are prepared by reacting an mPEG moiety of formula (VII) that reacts with a nucleophilic therapeutic agent. Formula (VIII) contemplates multiple polymers attached to the therapeutic agent.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to prepare prodrugs with the mPEG conjugate taught by Greenwald '986 using any of therapeutic agents taught by Greenwald '990 with a reasonable expectation of

success. Both of the references are drawn to the preparation of PEG conjugated therapeutic agents, and Greenwald '990 notes the importance of the amine group in the PEG moiety. In the absence of unexpected results, it would therefore be within the scope of the artisan to select any amine-containing PEG moiety, such as that taught by Greenwald '986 to prepare conjugates of the agents taught by Greenwald '990.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claims because the examined application claim is either anticipated by, or would have been obvious over, the reference claims. See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned

with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-7, 10-15 and 18-20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-41 of U.S. Patent No. 6,380,405. Although the conflicting claims are not identical, they are not patentably distinct from each other. The claims of '405 are limited to a taxane prodrug comprising a PEG oligomer comprising a salt-forming moiety. The more narrowly drawn claims of '405 anticipate the instant claims.

Claims 1-7, 10-15 and 18-20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-11 and 19-25 of U.S. Patent No. 6,541,508. Although the conflicting claims are not identical, they are not patentably distinct from each other. The claims of '508 are limited to a taxane prodrug comprising a PEG oligomer comprising a salt-forming moiety. The more narrowly drawn claims of '508 anticipate the instant claims.

Claims 1-7, 10-15 and 18-20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-105 of U.S. Patent No. 6,713,454. Although the conflicting claims are not identical, they are not patentably distinct from each other. The claims of '454 are limited to a taxane prodrug comprising a PEG oligomer comprising a salt-forming moiety. The more narrowly drawn claims of '454 anticipate the instant claims.

Claims 1-7, 10-15 and 18-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 58-87 of copending Application No. 10/395,548. Although the conflicting claims are not identical, they are not patentably distinct from each other. The claims of '548 are limited to a taxane prodrug comprising a PEG oligomer comprising a salt-forming moiety. The more narrowly drawn claims of '548 anticipate the instant claims. This is a *provisional* obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Examiner's hours, phone & fax numbers

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leigh Maier whose telephone number is (571) 272-0656. The examiner can normally be reached on Monday, Wednesday and Thursday 7:00 to 3:30 (ET).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Anna Jiang (571) 272-0627, may be contacted. The fax number for Group 1600, Art Unit 1623 is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197.

Leigh C. Maier

Leigh C. Maier
Primary Examiner
January 5, 2007